



5-28-04

Attorney's Docket No.: 16743-004001 / 12A-921112

IFC \$1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : You-Di Liao

Art Unit : Unknown

Serial No. : 10/813,549

Examiner : Unknown

Filed : March 29, 2004

Title : REMOVAL OF N-TERMINAL METHIONINE FROM PROTEINS BY  
ENGINEERED METHIONINE AMINOPEPTIDASE

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure as set forth in 37 C.F.R. §1.56, Applicants hereby submit the following information in conformance with 37 C.F.R. §§ 1.97 and 1.98.

Pursuant to 37 C.F.R. § 1.98, a copy of each of the documents cited is enclosed. However, copies of the listed U.S. patents and U.S. patent application publications are not enclosed since it is no longer required to submit copies of cited U.S. patents and U.S. patent application publications in national patent applications filed after June 30, 2003, according to the July 11, 2003 waiver of the requirement.

**United States Patents/ Patent Publications**

1. U.S. Patent No. 5,013,662

**Articles**

2. Abe, A., *et al.* (2000) Acetylation at the N-terminus of actin strengthens weak interaction between actin and myosin. *Biochem. Biophys. Res. Commun.*, 268:14-19.
3. Adachi, K., *et al.* (2000) Expression of functional soluble human  $\alpha$ -globin chains of hemoglobin in bacteria. *Protein Expr. Purif.*, 20:37-44.
4. Belagaje, R.M., *et al.* (1997) Increased production of low molecular weight recombinant proteins in *Escherichia coli*. *Protein Sci.*, 6:1953-1962.
5. Ben-Bassat, A., *et al.* (1987) Processing of the initiation methionine from proteins: properties of the *Escherichia coli* methionine aminopeptidase and its gene structure. *J. Bacteriol.*, 169(2):751-757.

**CERTIFICATE OF MAILING BY EXPRESS MAIL**

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May 26, 2004

Date of Deposit

6. Boix, E., *et al.* (1996) Role of the N terminus in RNase A homologues: differences in catalytic activity, ribonuclease inhibitor interaction and cytotoxicity. *J. Mol. Biol.*, 257:992-1007.
7. Busby, W.H., Jr., *et al.* (1987) An enzyme(s) that converts glutaminyl-peptides into pyroglutamyl-peptides. Presence in pituitary, brain, adrenal medulla, and lymphocytes. *J. Biol. Chem.*, 262(18):8532-8536.
8. Chang, S.Y., *et al.* (1989) Methionine aminopeptidase gene of *Escherichia coli* is essential for cell growth. *J. Bacteriol.*, 171(7):4071-4072.
9. Chen, S., *et al.* (2002) The specificity *in vivo* of two distinct methionine aminopeptidases in *Saccharomyces cerevisiae*. *Arch. Biochem. Biophys.*, 398(1):87-93.
10. Chiu, C.H., *et al.* (1999) Amino acid residues involved in the functional integrity of *Escherichia coli* methionine aminopeptidase. *J Bacteriol* 181(15):4686-4689.
11. Endo, S., *et al.* (2001) The additional methionine residue at the N-terminus of bacterially expressed human interleukin-2 affects the interaction between the N- and C-termini. *Biochemistry*, 40:914-919.
12. Fischer, W.H., and Spiess, J. (1987) Identification of a mammalian glutaminyl cyclase converting glutaminyl into pyroglutamyl peptides. *Proc. Natl. Acad. Sci. U.S.A.*, 84:3628-3632.
13. Hirel, P.H., *et al.* (1989) Extent of N-terminal methionine excision from *Escherichia coli* proteins is governed by the side-chain length of the penultimate amino acid. *Proc. Natl. Acad. Sci. U.S.A.*, 86:8247-8251.
14. Huang, H.C., *et al.* (1998) The *Rana catesbeiana rcr* gene encoding a cytotoxic ribonuclease. Tissue distribution, cloning, purification, cytotoxicity, and active residues for RNase activity. *J. Biol. Chem.*, 273(11):6395-6401.
15. Hwang, D.D.W., *et al.* (1999) Co-expression of glutathione S-transferase with methionine aminopeptidase: a system of producing enriched N-terminal processed proteins in *Escherichia coli*. *Biochem. J.*, 338(Pt 2):335-342.
16. Ishitani, M., *et al.* (2000) SOS3 function in plant salt tolerance requires N-myristoylation and calcium binding. *Plant Cell*, 12:1667-1677.
17. Leu, Y.J., *et al.* (2003) Residues involved in the catalysis, base specificity, and cytotoxicity of ribonuclease from *Rana catesbeiana* based upon mutagenesis and X-ray crystallography. *J. Biol. Chem.*, 278(9):7300-7309.

18. Li, X., and Chang, Y.H. (1995) Amino-terminal protein processing in *Saccharomyces cerevisiae* is an essential function that requires two distinct methionine aminopeptidases. *Proc. Natl. Acad. Sci. U.S.A.*, 92:12357-12361.
19. Liao, Y.D., and Wang, J.J. (1994). Yolk granules are the major compartment for bullfrog (*Rana catesbeiana*) oocyte-specific ribonuclease. *Eur J Biochem.*, 222:215-220.
20. Liao, Y.D., *et al.* (2000) Purification and cloning of cytotoxic ribonucleases from *Rana catesbeiana* (bullfrog). *Nucleic Acids Res.*, 28(21):4097-4104.
21. Liao, Y.D., *et al.* (2003) The structural integrity exerted by N-terminal pyroglutamate is crucial for the cytotoxicity of frog ribonuclease from *Rana pipiens*. *Nucleic Acids Res.*, 31(18):5247-5255.
22. Lowther, W.T., *et al.* (1999) *Escherichia coli* methionine aminopeptidase: implications of crystallographic analyses of the native, mutant, and inhibited enzymes for the mechanism of catalysis. *Biochemistry*, 38:7678-7688.
23. Lowther, W.T., and Matthews, B.W. (2000) Structure and function of the methionine aminopeptidases. *Biochim. Biophys. Acta.*, 1477:157-167.
24. Moerschell, R.P., *et al.* (1990) The specificities of yeast methionine aminopeptidase and acetylation of amino-terminal methionine *in vivo*. Processing of altered iso-1-cytochromes c created by oligonucleotide transformation. *J. Biol. Chem.*, 265(32):19638-19643.
25. Notomista, E., *et al.* (1999) Effective expression and purification of recombinant onconase, an antitumor protein. *FEBS Lett.*, 463:211-215.
26. Prchal, J.T., *et al.* (1986) Hemoglobin Long Island is caused by a single mutation (adenine to cytosine) resulting in a failure to cleave amino-terminal methionine. *Proc. Natl. Acad. Sci. U.S.A.*, 83:24-27.
27. Roderick, S.L., and Matthews, B.W. (1993) Structure of the cobalt-dependent methionine aminopeptidase from *Escherichia coli*: a new type of proteolytic enzyme. *Biochemistry*, 32:3907-3912.
28. Shapiro, R., *et al.* (1988) Expression of Met-(-1) angiogenin in *Escherichia coli*: conversion to the authentic <Glu-1 protein. *Anal. Biochem.*, 175:450-461.
29. Tahirov, T.H., *et al.* (1998) Crystal structure of methionine aminopeptidase from hyperthermophile, *Pyrococcus furiosus*. *J. Mol. Biol.*, 284:101-124.
30. Tobias, J.W., *et al.* (1991) The N-end rule in bacteria. *Science*, 254:1374-1377.

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Page : 4 of 4

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31. Varshavsky, A. (1996) The N-end rule: functions, mysteries, uses. Proc. Natl. Acad. Sci. U.S.A., 93:12142-12149.
32. Vetro, J.A., and Chang, Y.H. (2002) Yeast methionine aminopeptidase type 1 is ribosome-associated and requires its N-terminal zinc finger domain for normal function *in vivo*. J. Cell. Biochem., 85:678-688.
33. Walker, K.W., and Bradshaw, R.A. (1999) Yeast methionine aminopeptidase I. Alteration of substrate specificity by site-directed mutagenesis. J. Biol. Chem., 274(19):13403-13409.

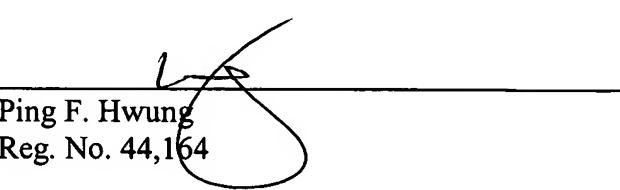
This Information Disclosure Statement is being submitted within three (3) months of the filing date or before any office action is issued. Consequently, no fee is required pursuant to 37 C.F.R. §1.97(b).

By citing the above references, Applicants do not acquiesce or admit that any of these documents is "prior art" under 35 U.S.C. Applicants specifically reserve the right, where appropriate, to antedate any of the cited documents by an appropriate showing under 37 C.F.R. §1.131, §1.604, §1.608 or any other suitable means.

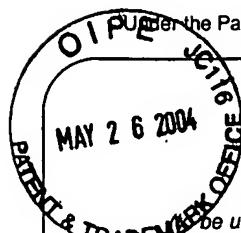
To assist the Examiner, the documents are listed on the attached form PTO-1449. It is respectfully requested that an Examiner initialed copy of this form be returned to the undersigned. Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: May 26, 2004

  
Ping F. Hwung  
Reg. No. 44,164

Fish & Richardson P.C.  
500 Arguello Street, Suite 500  
Redwood City, California 94063  
Telephone: (650) 839-5070  
Facsimile: (650) 839-5071



# TRANSMITTAL FORM

(be used for all correspondence after initial filing)

Total Number of Pages in this Submission

12 (plus 32  
references)

Application Number	10/813,549
Filing Date	March 29, 2004
First Named Inventor	You-Di Liao
Group Art Unit	Unknown
Examiner Name	Unknown

Attorney Docket Number

16743-004001

## ENCLOSURES (check all that apply)

- Fee Transmittal Form
  - Fee Attached
  - Amendment / Response
    - After Final
  - Combined Declaration and Power of Attorney
  - Extension of Time Request
  - Express Abandonment Request
  - Information Disclosure Statement
- 06/01/2004 JIBALINAN 00000009 10813549  
03 FC:2051  Certified Copy of Priority Document(s) 65.00 OP
- Response to Missing Parts/  
Incomplete Application
  - Response to Missing  
Parts under 37 CFR  
1.52 or 1.53

- Assignment Papers  
(for an Application)
- Drawings
- Licensing-related Papers
- Petition Routing Slip (PTO/SB/69)  
and accompanying Petition
- Petition to Convert to a  
Provisional Application
- Power of Attorney, Revocation  
Change of Correspondence  
Address
- Terminal Disclaimer
- Small Entity Statement
- Request for Refund

- After Allowance Communication  
to Group
- Appeal Communication to Board  
of Appeals and Interferences
- Appeal Communication to Group  
(Appeal Notice, Brief, Reply Brief)
- Proprietary Information
- Status Letter
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PTO-1449 form and 32 references  
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Remarks

## SIGNATURE OF APPLICANT, ATTORNEY OR AGENT

Firm or  
Individual name

Ping F. Hwung, Reg. No. 44,164

Signature

Date

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# FEES TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

**TOTAL AMOUNT OF PAYMENT** **(\$)** 477.00

## Complete if Known

Application Number	10/813,549
Filing Date	March 29, 2004
First Named Inventor	You-Di Liao
Examiner Name	Unknown
Art Unit	Unknown
Attorney Docket No.	16743-004001

## METHOD OF PAYMENT (check all that apply)

Check  Credit card  Money Order  Other  None

Deposit Account:

Deposit Account Number  
06-1050  
Deposit Account Name  
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The Director is authorized to: (check all that apply)

Charge fee(s) indicated below  Credit any overpayments  
 Charge any additional fee(s) or any underpayment of fee(s)  
 Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Entity	Small Entity	Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385			Utility filing fee	385
1002 340	2002 170			Design filing fee	
1003 530	2003 265			Plant filing fee	
1004 770	2004 385			Reissue filing fee	
1005 160	2005 80			Provisional filing fee	
<b>SUBTOTAL (1)</b>		<b>(\$)</b>		<b>385</b>	

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Independent Claims	Multiple Dependent	Extra Claims	Fee from below	Fee Paid
23	1		-20** =	3 x 9 =	27
			- 3** =	3 x 43 =	0

Large Entity	Small Entity	Fee Code (\$)	Fee Code (\$)	Fee Description
1202 18	2202 9			Claims in excess of 20
1201 86	2201 43			Independent claims in excess of 3
1203 290	2203 145			Multiple dependent claim, if not paid
1204 86	2204 43			** Reissue independent claims over original patent
1205 18	2205 9			** Reissue claims in excess of 20 and over original patent
<b>SUBTOTAL (2)</b>		<b>(\$)</b>		<b>27</b>

\*\*or number previously paid, if greater; For Reissues, see above

## 3. ADDITIONAL FEES

Large Entity Small Entity

Fee Code (\$)	Fee (\$)	Fee Code (\$)	Fee (\$)	Fee Description	Fee Paid
1051 130	2051 65			Surcharge - late filing fee or oath	65
1052 50	2052 25			Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130			Non-English specification	
1812 2,520	1812 2,520			For filing a request for ex parte reexamination	
1804 920*	1804 920*			Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*			Requesting publication of SIR after Examiner action	
1251 110	2251 55			Extension for reply within first month	
1252 420	2252 210			Extension for reply within second month	
1253 950	2253 475			Extension for reply within third month	
1254 1,480	2254 740			Extension for reply within fourth month	
1255 2,010	2255 1,005			Extension for reply within fifth month	
1401 330	2401 165			Notice of Appeal	
1402 330	2402 165			Filing a brief in support of an appeal	
1403 290	2403 145			Request for oral hearing	
1451 1,510	1451 1,510			Petition to institute a public use proceeding	
1452 110	2452 55			Petition to revive - unavoidable	
1453 1,330	2453 665			Petition to revive - unintentional	
1501 1,330	2501 665			Utility issue fee (or reissue)	
1502 480	2502 240			Design issue fee	
1503 640	2503 320			Plant issue fee	
1460 130	1460 130			Petitions to the Commissioner	
1807 50	1807 50			Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180			Submission of Information Disclosure Stmt	
8021 40	8021 40			Recording each patent assignment per property (times number of properties)	
1809 770	2809 385			Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385			For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385			Request for Continued Examination (RCE)	
1802 900	1802 900			Request for expedited examination of a design application	

Other fee (specify) \_\_\_\_\_

\*Reduced by Basic Filing Fee Paid

**SUBTOTAL (3) (\$)**

65

## SUBMITTED BY

(Complete if applicable)

Name (Print/Type)	Ping F. Hwang	Registration No. (Attorney/Agent)	44,164	Telephone (650) 839-5070
Signature			Date	May 26, 2004

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This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Sheet 1 of 4Substitute Form PTO-1449  
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Patent and Trademark OfficeAttorney's Docket No.  
16743-004001Application No.  
10/813,549Information Disclosure Statement  
by Applicant  
(Use several sheets if necessary)

Applicant

You-Di Liao

Filing Date  
March 29, 2004Group Art Unit  
Unknown

(37 CFR §1.98(b))

## U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA	5,013,662	05/07/1991	Ben-Bassat, et al.			
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

## Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	AL							
	AM							
	AN							
	AO							
	AP							

## Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	AQ	Abe, A., et al. (2000) Acetylation at the N-terminus of actin strengthens weak interaction between actin and myosin. Biochem. Biophys. Res. Commun., 268:14-19.
	AR	Adachi, K., et al. (2000) Expression of functional soluble human $\alpha$ -globin chains of hemoglobin in bacteria. Protein Expr. Purif., 20:37-44.
	AS	Belagaje, R.M., et al. (1997) Increased production of low molecular weight recombinant proteins in <i>Escherichia coli</i> . Protein Sci., 6:1953-1962.

Examiner Signature

Date Considered

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Form PTO-1449 (Modified)		U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 16743-004001	Application No. 10/813,549
<b>Information Disclosure Statement by Applicant</b> (Use several sheets if necessary)  (37 CFR §1.98(b))		Applicant	You-Di Liao	
		Filing Date March 29, 2004	Group Art Unit Unknown	

<b>Other Documents (include Author, Title, Date, and Place of Publication)</b>		
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	AT	Ben-Bassat, A., <i>et al.</i> (1987) Processing of the initiation methionine from proteins: properties of the <i>Escherichia coli</i> methionine aminopeptidase and its gene structure. <i>J. Bacteriol.</i> , 169(2):751-757.
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	AV	Busby, W.H., Jr., <i>et al.</i> (1987) An enzyme(s) that converts glutamyl-peptides into pyroglutamyl-peptides. Presence in pituitary, brain, adrenal medulla, and lymphocytes. <i>J. Biol. Chem.</i> , 262(18):8532-8536.
	AW	Chang, S.Y., <i>et al.</i> (1989) Methionine aminopeptidase gene of <i>Escherichia coli</i> is essential for cell growth. <i>J. Bacteriol.</i> , 171(7):4071-4072.
	AX	Chen, S., <i>et al.</i> (2002) The specificity <i>in vivo</i> of two distinct methionine aminopeptidases in <i>Saccharomyces cerevisiae</i> . <i>Arch. Biochem. Biophys.</i> , 398(1):87-93.
	AY	Chiu, C.H., <i>et al.</i> (1999) Amino acid residues involved in the functional integrity of <i>Escherichia coli</i> methionine aminopeptidase. <i>J. Bacteriol.</i> 181(15):4686-4689.
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	AAA	Fischer, W.H., and Spiess, J. (1987) Identification of a mammalian glutamyl cyclase converting glutamyl into pyroglutamyl peptides. <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 84:3628-3632.
	ABB	Hirel, P.H., <i>et al.</i> (1989) Extent of N-terminal methionine excision from <i>Escherichia coli</i> proteins is governed by the side-chain length of the penultimate amino acid. <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 86:8247-8251.
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	ADD	Hwang, D.D.W., <i>et al.</i> (1999) Co-expression of glutathione S-transferase with methionine aminopeptidase: a system of producing enriched N-terminal processed proteins in <i>Escherichia coli</i> . <i>Biochem. J.</i> , 338(Pt 2):335-342.
	AEE	Ishitani, M., <i>et al.</i> (2000) SOS3 function in plant salt tolerance requires N-myristylation and calcium binding. <i>Plant Cell</i> , 12:1667-1677.
	AFF	Leu, Y.J., <i>et al.</i> (2003) Residues involved in the catalysis, base specificity, and cytotoxicity of ribonuclease from <i>Rana catesbeiana</i> based upon mutagenesis and X-ray crystallography. <i>J. Biol. Chem.</i> , 278(9):7300-7309.

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	AGG	Li, X., and Chang, Y.H. (1995) Amino-terminal protein processing in <i>Saccharomyces cerevisiae</i> is an essential function that requires two distinct methionine aminopeptidases. <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 92:12357-12361.	
	AHH	Liao, Y.D., and Wang, J.J. (1994). Yolk granules are the major compartment for bullfrog ( <i>Rana catesbeiana</i> ) oocyte-specific ribonuclease. <i>Eur J Biochem.</i> , 222:215-220.	
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	AJJ	Liao, Y.D., <i>et al.</i> (2003) The structural integrity exerted by N-terminal pyroglutamate is crucial for the cytotoxicity of frog ribonuclease from <i>Rana pipiens</i> . <i>Nucleic Acids Res.</i> , 31(18):5247-5255.	
	AKK	Lowther, W.T., <i>et al.</i> (1999) <i>Escherichia coli</i> methionine aminopeptidase: implications of crystallographic analyses of the native, mutant, and inhibited enzymes for the mechanism of catalysis. <i>Biochemistry</i> , 38:7678-7688.	
	ALL	Lowther, W.T., and Matthews, B.W. (2000) Structure and function of the methionine aminopeptidases. <i>Biochim. Biophys. Acta.</i> , 1477:157-167.	
	AMM	Moerschell, R.P., <i>et al.</i> (1990) The specificities of yeast methionine aminopeptidase and acetylation of amino-terminal methionine <i>in vivo</i> . Processing of altered iso-1-cytochromes c created by oligonucleotide transformation. <i>J. Biol. Chem.</i> , 265(32):19638-19643.	
	ANN	Notomista, E., <i>et al.</i> (1999) Effective expression and purification of recombinant onconase, an antitumor protein. <i>FEBS Lett.</i> , 463:211-215.	
	AOO	Prchal, J.T., <i>et al.</i> (1986) Hemoglobin Long Island is caused by a single mutation (adenine to cytosine) resulting in a failure to cleave amino-terminal methionine. <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 83:24-27.	
	APP	Roderick, S.L., and Matthews, B.W. (1993) Structure of the cobalt-dependent methionine aminopeptidase from <i>Escherichia coli</i> : a new type of proteolytic enzyme. <i>Biochemistry</i> , 32:3907-3912.	
	AQQ	Shapiro, R., <i>et al.</i> (1988) Expression of Met-(-1) angiogenin in <i>Escherichia coli</i> : conversion to the authentic <Glu-1 protein. <i>Anal. Biochem.</i> , 175:450-461.	
	ARR	Tahirov, T.H., <i>et al.</i> (1998) Crystal structure of methionine aminopeptidase from hyperthermophile, <i>Pyrococcus furiosus</i> . <i>J. Mol. Biol.</i> , 284:101-124.	
	ASS	Tobias, J.W., <i>et al.</i> (1991) The N-end rule in bacteria. <i>Science</i> , 254:1374-1377.	
	ATT	Varshavsky, A. (1996) The N-end rule: functions, mysteries, uses. <i>Proc. Natl. Acad. Sci. U.S.A.</i> , 93:12142-12149.	

Examiner Signature	Date Considered
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Form PTO-1449 (Modified)		U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 16743-004001	Application No. 10/813,549
<b>Information Disclosure Statement by Applicant</b> (Use several sheets if necessary)  (37 CFR §1.98(b))		Applicant	You-Di Liao	
		Filing Date March 29, 2004	Group Art Unit Unknown	

<b>Other Documents (include Author, Title, Date, and Place of Publication)</b>		
Examiner Initial	Desig. ID	Document
	AUU	Vetro, J.A., and Chang, Y.H. (2002) Yeast methionine aminopeptidase type 1 is ribosome-associated and requires its N-terminal zinc finger domain for normal function <i>in vivo</i> . <i>J. Cell. Biochem.</i> , 85:678-688.
	AVV	Walker, K.W., and Bradshaw, R.A. (1999) Yeast methionine aminopeptidase I. Alteration of substrate specificity by site-directed mutagenesis. <i>J. Biol. Chem.</i> , 274(19):13403-13409.

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